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ABSTRACT

Many rural towns and villages fail to achieve their tourism development goals because the pulling power of their attractions is not strong enough. An appropriate combination of minor attractions may be an effective means of increasing the pulling power of these destinations. This study demonstrates a method for predicting the probability of a visit to other attractions based on the visitation of one attraction. Along with other analyses, a series of 11 bivariate logistic regression analyses predicts the probability of tourists visiting the 10 other attractions if they visited a specific attraction. For example, the results indicate that a visit to Sunset Crater may be nearly 19 times more likely when Wupatki National Monument is visited. The study demonstrates that separating natural and cultural attractions while valid for solving many research problems, is of little value in understanding the behavior of general sightseeing visitors.

The results of the research method may be useful for creating a strong image for the destination, cross-marketing attractions, developing packages that sell local lodging and food service, for advertising and for developing tours.

INTRODUCTION

Attractions are the pull motivators that comprise the fundamental elements on which tourism is based (Lew 1987a). The ability of a tourist destination to appeal to visitors is dependent upon the strength of its tourist attractions which are the primary motivation for tourist visits (Kantanen and Tikkanen 2006). A major attraction such as the Grand Canyon or a major theme park exerts a strong pull that draws visitors from considerable distances. On the other hand, minor attractions such as local museums draw smaller numbers of visitors from shorter distances. In many rural areas and small tourism complexes a number of attractions must be combined to have a strong enough pull to attract a significant number of visitors. Even destinations with a major attraction may require other smaller attractions to retain visitors for extended stays.

While destinations rely on a variety of attractions to motivate potential visitors, many destinations have more attractions than it is possible for visitors to enjoy in one visit.

Consequently, identifying packages that cluster attractions may be the key to increasing the pull of a tourist destination. Creating effective packages requires knowledge of the visitation relationship among the attractions. It would be useful for marketers to be able to predict the likelihood of visitation to one attraction based on knowledge of other attractions that were visited.

The drawing power of an attraction is critical to the success of the tourism industry in a destination area. To create drawing power, rural and small city attraction complexes rely on a number of small scale attractions that create identifiers to mark the place as worthy of a visit (Lew 1987b; MacCannell 1976: WTO 1980). Such complexes commonly list specific attractions by name in their promotional material and thus the attractions become the focal point of the image created in the mind of the consumer.

However, creating a clear image from a set of diverse individual attractions that Gunn (1979) described as ‘touring attractions’ is challenging for many smaller destination communities. ‘Touring attractions’ are designed

for travelers in transit and are characterized by short visits to many poorly integrated sites (Gunn 1979). They may have difficulty attracting repeat visitors because of their remote or isolated location in less populated areas (Caffyn & Lutz 1999). The lack of repeat visitors along with a weak marketing image results in an insecure and unsustainable business model (Peck & Lepie 1977). A preferable business model is the creation of a destination with integrated attractions (Lew 1987a). Research suggests that attractions can be integrated based on whether they are natural or heritage/cultural. Lew (1987a) published an extensive study of attraction typologies in which he classified the typology studies as nature-based, nature-human interfaced-based or human-based.

A nature-culture dichotomy is implied in numerous studies that suggest that there is a difference between visitors to natural versus heritage or cultural attractions (e.g. McKercher's (2002) typology of cultural tourists, Jurowski, Combrink & Cothran's (2005) study of nature-based visitors, Deng, Kin & Bauer's evaluation of natural attractions, and Kantanen and Tikkanen's study of cultural attractions). The matter is further complicated by a number of recent studies that propose the so called 'cultural tourist' may actually not be seeking an understanding of a destination heritage but instead are visiting for recreation and entertainment (DKS 1999: McKercher, 2002: McKercher & du Cross, 2003; Richards, 2002; Silberberg 1995 in McKercher & Ho 2006).

The unclear pattern of the general sightseeing tourists identified by Fennell (1996) increases the difficulty of marketing a small destination area. When faced with a number of choices and a limited time frame, visitors may need assistance in selecting attractions that will leave them with a positive image of the destination. Furthermore the effective creation of attraction packages is likely to increase the pulling power of a destination. However, the creation of such packages is dependent upon an understanding of which attractions visitors choose in their limited time frame.

Consequently, an understanding of the relationships among attractions is critical for managing and marketing small attraction complexes (McKercher and Ho 2006).

The purpose of the research reported here is to demonstrate a method for predicting the probability of a visit to an attraction based on the visitation of other attractions. The method may be useful for determining the probability of a visitor to one attraction going to other attractions in the same complex. In other words, if a tourist visits a museum, how likely is it that s/he will also visit a historic site, a natural attraction, and/or an event venue?

RESEARCH METHODS

Surveys were distributed at 12 sites, 11 of which were attractions, in Flagstaff, Arizona from June 2004 to May 2005. A total of 1253 surveys completed surveys were collected during the 12-month period. Table 1 displays data regarding the number of collected surveys distributed at each attraction. Respondents were asked to indicate which of the attractions they either visited or planned to visit.

Table 1: Distribution of Attraction Surveys

Attraction	Count	Percent
Museum of Northern Arizona	447	35.7%
Riordan Mansion State Historic Park	329	26.3%
Arizona Snowbowl	93	7.4%
Lowell Observatory	19	1.5%
Wupatki National Monument	17	1.4%

The Arboretum of Flagstaff 16 1.3%

Sunset Crater Volcano Nat'l Monument 11 .9%

Fort Tuthill County Parks 10 .8%

Pioneer History Museum 7 .6%

Walnut Canyon National Monument 6 .5%

Coconino Center for the Arts 4 .3%

Total 1253 100.0%

Several steps were taken to identify patterns in visitation. Frequencies, bivariate correlations and crosstabs were performed to determine the extent of multi-attraction visits. Next, visitors were separated a priori into groups based on whether they visited natural or cultural attractions to determine if those who visited cultural attractions were more likely to visit other cultural attractions and those who visited natural attractions were more likely to visit natural attractions. Finally, a series of 11 logistic regression analyses were performed to predict the probability of tourists visiting the 10 other attractions if they visited a specific attraction. Each attraction was the dichotomous dependent variable in a separate model. The other 10 attractions were the independent variables. A backward likelihood ratio stepwise method was used as the variable selection technique for the regression models (Menard, 2001). Regression coefficients were estimated through an iterative maximum likelihood method. The models are expressed with the exponential coefficients (exp ß) which represent the change of odds ratio corresponding to the change of independent variables (Field, 2000).

FINDINGS

Analysis of frequencies, bivariate correlations and crosstabs revealed considerable multiattraction visits. The most visited of the 11 attractions was the Museum of Northern Arizona (MNA), followed by Lowell Observatory, Riordon Mansion State Historic Park (Riordon Mansion), Sunset Crater Volcano National Monument (Sunset Crater), Wupatki National Monument (Wupatki) and Walnut Canyon National Monument (Walnut Canyon). Table 2 displays the count and percentage of visitors who visited each of the 11 attractions. Cross tabs revealed that more than 50% of the visitors who visited the MNA also visited or planned to visit 4 of the other 5 most visited attractions. The same was true for the next five, i.e. more than 50 percent of those who visited one of the top six, also visited the other 5 attractions.

Table 2 Visitation of Attractions

Attraction Count Percent

Museum of Northern Arizona 465 42.0%

Lowell Observatory 374 33.8%

Riordan Mansion State Historic Park 344 31.1%

Sunset Crater Volcano Nat'l Monument 315 28.5%

Wupatki National Monument 303 27.4%

Walnut Canyon National Monument 258 23.3%

Arizona Snowbowl 352 31.8%

Pioneer History Museum 174 15.7%

The Arboretum of Flagstaff 151 13.7%

Fort Tuthill County Parks 136 12.3%

Coconino Center for the Arts 102 9.2%

When attractions were separated a priori into natural attractions and cultural attractions the frequency analysis revealed that 79.8 % of the population visited both natural and cultural attractions suggesting that nature and cultural visitors were not separate market niches. Yet, more analysis was needed to uncover visitation patterns among the top six attractions that could be used in packaging, image creation and cross marketing. The determination of attraction groupings required an understanding of the likelihood of visitation of one attraction based on the visitation of other attractions. Logistic regression models for each of the 11 attractions provide probabilities of a tourist visiting another attraction.

The three most popular attractions may be catalysts for visitation of other attractions. A visitor who goes to the Museum of Northern Arizona is more than twice as likely to also visit Lowell Observatory (2.19), Walnut Canyon NM (2.48), the Pioneer History Museum (2.16) and the Arboretum (2.43). They are also 1.36 times more likely to visit Wupatki NM and 59% more likely to visit Fort Tuthill County Park. Similarly a visit to Lowell Observatory more than doubles the chance of a visit to Riordon Mansion (2.56), Sunset Crater NM (2.72), Snow Bowl Ski Resort (2.95) and the Museum of Northern Arizona (2.19) and nearly doubles the chance of a visit to the Arboretum (1.75). A visit to Riordon Mansion, the third most popular attraction, is close to or more than twice as likely to initiate a visit to Lowell Observatory (2.62), Walnut Canyon NM (2.00), the Arboretum (2.11) and Sunset Crater (1.88).

The binary regression model in which the observatory was the dependent variable shows that visits to either natural or cultural attractions were likely to be the catalyst for a visit to the observatory. Tourists who visited Arizona Snowbowl (natural) were almost three times (2.95) more likely to visit Lowell Observatory than those who did not visit the ski resort. Those who visited the MNA (cultural) were 2.19 times more likely to visit the observatory and visitors to Riordon Mansion (cultural) were 2.56 times more likely to visit Lowell while those who visited Sunset Crater (natural) were 2.62 times as likely.

The most remarkable relationships are those among Walnut Canyon, Wupatki and Sunset Crater. Those who visited Sunset Crater were 18.92 times more likely to visit Wupatki and those who visited Walnut Canyon were 7.57 times more likely to visit the volcanic national monument.

Those who visited Wupatki are 10.33 times more likely to visit Walnut Canyon and visitors to Walnut Canyon are 10.32 times more likely to visit Wupatki.

The analysis revealed a relationship among the Pioneer History Museum, Wupatki National Monument and the Museum of Northern Arizona where visitors to Wupatki NM are 4.39 times more likely to visit the history museum but only 1.25 more likely to visit the Museum of Northern Arizona and those who visit the later museum are 1.36 times more likely to visit Wupatki NM. However, those who visit the Pioneer History Museum are 4.43 times more likely to visit Wupatki. The relationship between the Museum of Northern Arizona and the Pioneer History Museum appears to be reciprocal, i.e. if a visitor visits one of the museums s/he is 2.16 to 2.19 times more likely to visit the other. Data related to the probabilities of visitation are delineated in Table 3.

Table 3 Exponential ß based on logistic regression on visitation to attractions

Attraction	MNA	Lowell	Riordan	Sunset	Wupatki	Walnut	Snow	Pioneer	Arboretum	Fort	Art
MNA		2.19			1.25	2.45	0.59	2.16	2.37	0.59	
Lowell	2.19		2.62	2.28	1.82	1.54	2.95		1.75		

Riordan		2.56		1.67	1.59	2.27			2.15		
Sunset		2.72	1.88		17.78	7.57	0.53				
Wupatki	1.36			18.92		10.32		4.43	1.80	0.61	
Walnut	2.48		2.00	7.57	10.33			0.62			
Snow	1.70	2.95		1.89		1.87			1.45		
Pioneer	2.16				4.39	0.61			1.83	1.67	2.36
Arboretum	2.43	1.75	2.11	1.67	1.68			1.92		2.97	1.74
Fort	0.55				0.44			2.75			2.02
Art				0.43				2.03		2.20	

Museum of Northern Arizona (MNA), Lowell Observatory (Lowell), Riordan Historic Mansion (Riordon), Sunset Crater Volcanic National Monument (Sunset), Wupatki National Monument (Wupatki.), Walnut Canyon National Monument (Walnut), Snow Bowl Ski Resort (Snow), Pioneer History Museum (Pioneer), The Flagstaff Arboretum (Arboretum), Fort Tuthill County Park events (Fort), Coconino Center for the Arts event venue (Art).

DISCUSSION

The substantial cross visitation uncovered in this research suggests that natural and cultural attraction visitors were not separate market niches. In fact, it appears as if a visit to a natural attraction could trigger one to a cultural or scientific attraction and vice versa. For example, the skiers and those who rode the ski lift in the summer at Arizona Snowbowl were almost three times (2.95) more likely to visit Lowell Observatory than those who did not visit the ski resort.

Those who visited the Museum of Northern Arizona were twice as likely (2.19) to visit the observatory and visitors to Riordon Mansion were 2.62 times more likely to visit Lowell while those who visited Sunset Crater were 2.28 times as likely.

Further, there does not appear to be a strong likelihood of historic attractions visitations predicting the visitation to other historic attractions. For example, visitation to the Riordon Historic Mansion does not predict visitation to the Pioneer History Museum. Even though the commonalities among the two early settler historic attractions intuitively implies a strong bases for packaging, the data suggest it might be better to package the Pioneer History Museum with Wupatki National Monument and the historic mansion with Walnut Canyon. The relationship between the Pioneer History Museum and Wupatki National Monument is interesting because one tells the story of the pioneers while the other tells the story of the land and the people before Westerners settled in the area. Both are historic and cultural but there are vast differences in the era of history, the landscape (one is in town, the other in a Canyon), and distance (the two attractions are more than 15 miles from each other). Consequently, the relatively strong probability (exp ß > 4) of visiting the Pioneer History Museum and Wupatki National Monument requires further study.

The strongest probabilities can be explained by location. Wupatki National Monument and Sunset Crater are located in the same general area. However, the third component of the powerful trio, Walnut Canyon, is a considerable distance from the other two. The connection that the three attractions have is the interaction of the people and the land. All three offer spectacular landscapes that tell a story of pre-western civilization.

APPLICATION OF RESULTS

Many rural towns and villages fail to achieve their tourism development goals because the pulling power of their attractions is not strong enough. An appropriate combination of minor attractions may be an effective means of increasing the pulling power of these destinations. The study demonstrates that segmenting visitors into nature and historic/cultural categories is of little value in understanding the behavior of general sightseeing visitors.

The binary logistic regression method applied in this study, on the other hand, demonstrates a method for predicting the likelihood of visitation of an attraction based on visitations to other attractions. The identification of such relationships has four important applications: 1) image definition; 2) marketing packages; 3) group tour packaging; and 4) cross marketing.

The eleven attractions in a small tourism complex were mixed in their ideographic, organizational and cognitive perspectives as described by Lew (1987a). Their features were represented in all components of Deng et al.'s (2002) hierarchical structure and Kusen and Tadej's (2003) functional classification of tourism attractions. This mix of man made, historical and cultural attractions creates a difficult challenge for the identification of a singular marker or image that would make the destination noteworthy (MacCannell 1976). Yet the integration of attractions is particularly important to small destination complexes that do not have a major attraction. In this case study, the strong connection between Wupatki, Sunset Crater and Walnut Canyon suggests a favorable potential for developing an image that focuses on a theme linking the three attractions.

Attraction packages that include related attractions, lodging, food service, and activities can be developed to create an integrated memorable experience. Packages based on visitation relationships may be more likely to result in positive word of mouth than intuitive packages because they may be more congruent with the visitors' motivations and the nature of the destination, thereby improving the affective image the tourists have after their visit (Kantanen and Tikkanen 2006).

Tour operators may find the method useful for determining the attractions most likely to appeal to a tour group. A tour that includes a visit to the MNA may be more successful if it were paired with Lowell Observatory, Walnut Canyon, the Pioneer History Museum and/or the Arboretum. Riordon Mansion, Sunset Crater and/or the MNA should be included in a tour with Lowell Observatory. Tour companies seeking to include the two most popular attractions, the MNA and Lowell Observatory, and one other should consider the Riordon Mansion or Walnut Canyon.

A third use for the data is for cross marketing of attractions. This may be especially useful for less visited attractions such the Pioneer History Museum and the Arboretum where an increase in visitation is desired. Based on likelihood data, the history museum should be promoted at Wupatki, Fort Tuthill County Park events, the MNA, the Coconino Center for the Arts, the Arboretum, and Walnut Canyon. The attractions are listed in the order of effectiveness with those listed first as being the most effective attractions for cross marketing the Pioneer History Museum. The Arboretum may find the MNA to be the best location for placing collateral material followed by Riordon Mansion State Park.

CONCLUSION

Identifying the probabilities of visitation to a specific attraction based on visitation to other attractions in the same tourism complex may be useful for creating a strong image for the destination, cross-marketing attractions, developing packages that sell local lodging and food service, as well as for advertising and developing tours. Rural areas and small cities may find the technique especially valuable for the identification of a viable and effective image.

The findings are limited by the case study nature of the data and by the convenience sampling technique used. Future research should test the validity of the probabilities and the effectiveness of marketing based on the results.

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